



DATE: February 11, 1985

TO: Land Division File  
*RQH*

FROM: Rick Hersemann, DLPC/FOS - Central Region

SUBJECT: LPC #04180801 - DOUGLAS COUNTY  
TUSCOLA/CABOT CORPORATION (SUBPART F)

An inspection of the Cabot Corporation facility in Tuscola, Illinois was conducted on February 11, 1985. Those present during the inspection included Mr. Gabriel Paci, Ms. Jackie Prueitt, Mr. Larry Crews, Mr. Randy Bergeson, Mr. Dave Wolfe and Mr. Jim Teeters of Cabot Corporation; Dr. Rauf Piskin of Hydropoll, Inc; and Mr. Dale Helmers, Mr. Steve Davis, and Mr. Rick Hersemann of the IEPA.

The purpose of the inspection was to check Cabot Corporation's (Cabot) compliance with Subpart F Interim Status Standards for groundwater monitoring. Cabot has a two-cell surface impoundment, excavated into glacial tills, which accepts D002 (corrosive) wastewater. The wastewater contains one to four percent hydrochloric acid. The wastewater enters the surface impoundment from the west through underground pipelines. The wastewater flows east through the surface impoundment to a sump located at the east end. The wastewater is pumped from the sump through underground pipelines to a deep injection well. The wastewater is injected under pressure through the disposal well into the Eminence-Potosi dolomite formation, approximately one mile below the ground surface. The wastewater is neutralized by the dolomites in the Eminence-Potosi Formation.

In addition to the hydrochloric acid wastewater, several other wastewaters generated at the facility are placed into the surface impoundment for disposal down the deep injection well. These wastes are: rainfall runoff from diked areas around product storage tanks, leachate collected from past disposal areas, acids from spills, and washings from the silane waste treatment scrubber and storage tanks. Prior to 1981, wastes generated at A. E. Staley Manufacturing Company of Decatur and R. R. Donnelley Company of Mattoon were deposited into the surface impoundment for disposal through the deep injection well. According to Mr. Paci, the wastewater accepted from R. R. Donnelley contained organic constituents.

The following information provides clarification and more detail to the Subpart F inspection checklists. Items are referenced to specific questions of Appendix A-1, Appendix A-2, Appendix B, and Appendix C checklists. Checklist items which are self-explanatory are not referenced. Checklist items needing clarification or more detail are referenced to the specific question's number.

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Appendix A-1

2. Cabot has implemented a groundwater quality assessment program consisting of one upgradient well (MW1) and downgradient wells MW6, MW7, MW8, MW9, MW10, MW11, MW12, and MW13. Cabot plans to install five additional downgradient monitor wells.
3. The upgradient monitor well (MW1) is located 400 feet west of the surface impoundment. MW1 is being affected by an outside source of contamination from USI to the west.
4. Downgradient monitor wells MW6 (south), MW7 (north), and MW8 (east) are shallow wells located at the edge of the dike around the surface impoundments. Downgradient monitor well MW9 is a deep well located next to MW6 on the south side of the surface impoundment. Downgradient monitor wells MW10, MW11, and MW12 are shallow monitor wells located on the east property line. Downgradient monitor well MW13 is a deep well located on the east property line just east of the Leach Field.
7. Boring logs with well completion details are in Agency files.
8. Cabot has developed and implemented a groundwater sampling and analysis plan. Information in the plan, plus copies of Cabot's groundwater quality assessments, have been submitted to the Agency. Cabot plans to upgrade their sample collection procedures.
9. Cabot completed the first year of sampling for the parameters required in 725.192(b)(1), 725.192(b)(2), and 725.192(b)(3). Statistical evaluation of analysis results triggered the facility into a quarterly groundwater quality assessment program. Cabot plans to install five additional monitor wells (MW14, MW15, MW16, MW17, and MW18) in April, 1985.

Cabot's sampling program will consist of the following frequency of sampling and parameters to be analyzed for; per approved groundwater quality assessment program.

- a. Sample wells MW1, MW6, MW7, MW8, MW9, MW10, MW11, MW12, MW14, MW15, MW16, MW17 and MW18 annually for parameters listed in 725.192(b)(2),

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- b. Sample wells MW1, MW9, MW10, MW11, MW12, MW14, MW15, MW16, MW17, and MW18 quarterly for pH and specific conductance plus hazardous waste constituents: Bis (2-Ethyl-Hexyl) phthalate, Carbon tetrachloride, methylene chloride, Tetrachloroethylene, Benzene, Toluene, Chloroform, Ethylbenzene, Di n octyl phthalate, and Butyl benzyl phthalate.
10. Cabot has implemented an approved groundwater quality assessment program. Ten hazardous waste constituents were found to have entered the groundwater. Cabot is currently evaluating the vertical and horizontal rate and extent of contamination. Additional shallow and deep wells will be installed in April, 1985.

#### Appendix A-2

4. A certified groundwater quality assessment plan was submitted to Director Carlson in a letter from Cabot dated February 1, 1984. A supplement to the groundwater quality assessment plan was submitted to Compliance Monitoring in a letter from Cabot dated March 28, 1984. A proposal to modify the groundwater monitoring system, frequency of analyses, and parameters to be analyzed was submitted to Compliance Monitoring in a letter from Cabot dated May 5, 1984 and approved on May 14, 1984. As a result of the Subpart F inspection and meeting held with Cabot on February 11, 1985; Cabot submitted another modification to Compliance Monitoring in a letter dated February 28, 1985. This modification was approved by Compliance Monitoring in a letter dated March 25, 1985.

#### Appendix B

- 1.3 Cabot has implemented an approved groundwater quality assessment program.
- 2.1 Cabot has an aerial photo and a 15 minute quadrangle map, scale 1 inch - 2000 feet; a map prepared by Bruce Yare & Associates, scale 1 inch - 200 feet; a map prepared by Rauf Piskin, scale 1 inch = 100 feet; and a plot plan of the plant, scale 1 inch = 200 feet; in the groundwater monitoring program. The topography near the facility is flat farmland. Significant topographic

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features in the area are the Kaskaskia River, surface impoundments and waste gypsum piles at the U.S. Industrial Chemical plant to the west, and Cabot's surface impoundment, leach field, and landfill. Cabot has 2 deep injection wells and USI has one deep injection well which inject wastewater with low pH's into the Eminence-Potosi dolomite formation.

- 2.2 Cabot has a regional hydrogeologic map, scale 1 inch = 2000 feet in the groundwater monitoring program. The map indicates that the Cabot facility is located on a major recharge zone. A groundwater divide is located just west of the Cabot facility. Groundwater west of the divide flows west and discharges into the Kaskaskia River. Groundwater east of the divide flows east-southeast and discharges near Tuscola. Shallow groundwater underlying the Cabot facility flows to the southeast.
- 2.3 Cabot's plot plan consists of the maps previously mentioned in 2.1.
- 2.4 Rauf Piskin prepared a site water table (potentiometric) contour map of the Cabot facility based on January 14, 1985 groundwater elevations. Copy of the map is in Agency files. Upgradient well MW1 is located 400 feet west of the surface impoundment and appears capable of providing representative ambient groundwater quality data. Downgradient wells on the map are MW2, MW3, MW4, MW5, MW6, MW7, MW8, MW9, MW10, MW11, MW12, and MW13. The map should be updated when wells MW14, MW15, MW16, MW17, and MW18 are installed.
- 3.1 Soil borings and monitor wells were drilled and installed by Shaffer-Krimmel-Silver of Decatur, Illinois under the supervision of Bruce Yare and Associates of Belleville, Illinois and Rauf Piskin of Hydropoll, Inc., Springfield, Illinois.
- 3.3 Thirteen soil borings were made by hollow stem auger for RCRA compliance. Monitor wells were installed in each of the thirteen borings. Copies of boring logs are in Agency files.
- 3.5 Lithologic samples were collected during the drilling at 5 foot intervals by split spoon and shelly tube sampling.
- 4.1 See 3.1
- 4.2 Thirteen monitor wells were installed for RCRA compliance. An additional five monitor wells will be installed in April 1985. Monitor wells MW1, MW6, MW7, MW8, MW9, MW10, MW11, MW12, MW14, MW15, MW16, MW17, and MW18 will be sampled as part of the groundwater quality assessment program. Monitor wells MW2, MW3, MW4, MW5, and MW13 have been deleted from the program but are still functionable.

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- 4.3 Well construction data for each monitor well is shown on the boring logs which are in Agency files. All wells in the sampling program have locking caps except MW1. (MW 1 has a screw-on protective standpipe cap and can't be locked. The cap on MW1 must be removed with a large wrench and hammer. The site also has 24 hour security).
- 5.1 Raul Piskin prepared a geologic cross-section of the surface impoundment. (Submitted in October 21, 1983 letter to Glenn Savage - Central Region Manager). The surface impoundment, which is raised above ground level by clay dikes, is underlain by glacial till. The depth of the surface impoundment is approximately 10 feet from the top of the dike to the bottom of the surface impoundment.
- 5.2 Cabot's facility is underlain by several hundred feet of glacial tills. Permeability of the tills range from  $1.1 \times 10^{-8}$  to  $7.5 \times 10^{-9}$  cm/sec. The uppermost saturated zone is sand lenses within the glacial till clay and silt.
- 5.3 Static water levels are measured using a steel tape. Seasonal fluctuations in the static water levels occur which should not alter groundwater gradients and flow directions. Groundwater should flow radially from the surface impoundment's recharge mound in all directions. Regional groundwater flow has been determined to be to the southeast.

Deep well MW9 is showing contamination which may indicate a vertical flow. The groundwater quality assessment report calculations show that the vertical velocity is higher than the horizontal velocity.

- 5.4 Data concerning aquifer hydraulic properties is outlined in the February 1985 groundwater quality assessment report prepared by Raul Piskin.
- 6.1 Monitor wells are screened in the upper and middle portion of the uppermost aquifer underlying the facility. Well clusters are located south of the surface impoundment (MW6, MW9) and along the east property line just east of the leach field (MW10, MW13). Well MW14 will be a 75 foot deep well installed just east of MW6. Well MW18 will be a 50 foot deep well installed next to MW10 to replace MW13 in the program. Another 50 foot well, MW17, will be installed next to shallow well MW16.
- 7.2 Under Cabot's revised sampling program, shallow wells will be sampled with peristaltic pumps with dedicated teflon tubing. Deep wells will be sampled with teflon bailers. The bailers and the silicon tubing in the pump head will be cleaned with methanol followed by a deionized water rinse.

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- 8.0 Samples are collected and placed in the proper preservation bottles. Samples are delivered to the proper laboratory along with a lab sheet containing the proper chain-of-custody control. Samples are refrigerated until time of analysis.
- 9.1 Sample analysis is performed by Cabot's laboratory in Tuscola, Illinois; Daily Analytical Laboratory in Peoria, Illinois; TEI Analytical Laboratory in Park Ridge, Illinois; and Environmental Laboratory, Inc. in Gulfport, Mississippi.
- 9.7 Information from field activity logs is recorded on the chain-of-custody control form for each sample collected.
- 10.0 Site verification of Cabot's facility was made by physically inspecting the area around the surface impoundment. The surface impoundment, leach field, landfill, and monitor wells were checked for verification. All items correspond to the plot plan.

Cabot's two-celled surface impoundment is composed of a north and a south cell. The north cell was not in operation. The south cell was in operation and contained 6 to 7 feet of wastewater and 4 feet of freeboard. Both cells are approximately 10 feet deep. Both cells are diked and elevated above the ground level of the surrounding area. The dikes around the surface impoundment are covered with gravel. The elevated surface impoundment acts as a recharge zone to the shallow groundwater.

#### Appendix C

- 1.1 Hazardous waste constituents found to be originating from the waste management area include: Bis (2-Ethyl-Hexyl) phthalate, Carbon tetrachloride, Methylene chloride, Tetrachloroethylene, Benzene, Toluene, Chloroform, Ethylbenzene, Di n octyl phthalate, and Butyl benzyl phthalate.
- 1.2 Downgradient monitor wells MW6, MW7, and MW8 showed significant increases in TOX, TOC, and specific conductance and significant decreases in pH. Upgradient monitor well MW1 showed a significant increase in TOX. MW1 is being influenced by an outside source of contamination to the west at USI.
- 3.1 Consultant Raul Piskin is still evaluating, as part of the approved groundwater quality assessment plan, the rate and extent of migration of hazardous waste constituents.

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- 3.2 Additional monitor wells MW14, MW15, MW16, MW17 and MW18 will be installed as part of the groundwater quality assessment program. The new wells, plus past sampling of the other wells, and geophysical methods, will determine the extent of contamination. The rate of contamination migration and the extent of contamination is still being determined by Rauf Piskin.

#### Summary

Cabot Corporation has implemented and is operating a groundwater quality assessment program. Groundwater quality assessments are made on a quarterly basis. Cabot needs to install additional monitor wells to determine the rate and extent of groundwater contamination and the concentrations of hazardous waste constituents in the groundwater. Cabot will be considered to be in non-compliance with 725.193(d)(7)(A) of Subpart F -- Groundwater Monitoring requirements until the following items are completed:

1. Determine rate and extent of groundwater contamination.
2. Determine concentrations of hazardous waste constituents in the groundwater.
3. Install monitor wells MW14 (G114), MW15 (G115), MW16 (G116), MW17 (G117), and MW18 (G118).
4. Submit boring logs and well construction diagrams for the five new wells.
5. Submit sample analysis results from the five new wells for the parameters outlined in the groundwater quality assessment program.
6. Submit new site water table (potentiometric) contour map with the new well locations.

NOTE: Violations of 725.193(d)(7)(A) were cited in the January 22, 1985 Compliance Inquiry Letter from Compliance Monitoring.

RH:jg

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DLPC/Compliance Monitoring

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Douglas Co. LPC# 04180801  
Tuscola / Cabot Corp  
APPENDIX A-1

FACILITY INSPECTION FORM FOR COMPLIANCE WITH INTERIM  
STATUS STANDARDS COVERING GROUND-WATER MONITORING

Company Name: Cabot Corporation ; IEPA I.D. Number: LPC# 04180801  
Company Address: P.O. Box 188 ; USEPA I.D. Number: 042075333  
Tuscola, Ill. 61953 Inspector's Name: Rick Hersemann  
DLPC/FOS

Company Contact/Official: Gabriel Paci ; Branch/Organization: \_\_\_\_\_  
Title: Manager - Environmental Affairs Date of Inspection: February 11, 1985  
Jackie Pruett - Senior Lab Tech

	<u>Yes</u>	<u>No</u>	<u>Unknown</u>	<u>Waved</u>
Type of facility: (check appropriately)				
a) surface impoundment	<u>X</u>	___		
b) landfill	___	___		
c) land treatment facility	___	___		
d) disposal waste pile*	___	___		

Ground-Water Monitoring Program

- |   |          |     |     |     |
|---|----------|-----|-----|-----|
| 1. Was the ground-water monitoring program reviewed prior to site visit?<br>If "No,"  | <u>X</u> | ___ |     |     |
| a) Was the ground-water program reviewed at the facility prior to site inspection?  | ___      | ___ |     |     |
| 2. Has a ground-water monitoring program (capable of determining the facility's impact on the quality of groundwater in the uppermost aquifer underlying the facility) been implemented? 725.190(a) | <u>X</u> | ___ | ___ | ___ |

\*Listed separate from landfill for convenience of identification.

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	<u>Yes</u>	<u>No</u>	<u>Unknown</u>	<u>Wavied</u>
8. Has a ground-water sampling and analysis plan been developed? 725.192(a)	<u>X</u>	—	—	
a) Has it been followed?	<u>X</u>	—	—	
b) Is the plan kept at the facility?	<u>X</u>	—	—	
c) Does the plan include procedures and techniques for:				
1) Sample collection?	<u>X</u>	—		Sample collection procedures will be upgraded
2) Sample preservation?	<u>X</u>	—		
3) Sample shipment?	<u>X</u>	—		
4) Analytical procedures?	<u>X</u>	—		
5) Chain of custody control?	<u>X</u>	—		
9. Are the required parameters in ground-water samples being tested quarterly for the first year? 725.192(b) and 725.192(c)(1)	<u>X</u>	—		
a) Are the ground-water samples analyzed for the following:				
1) Parameters characterizing the suitability of the ground-water as a drinking water supply? 725.192(b)(1)	<u>X</u>	—		
2) Parameters establishing ground-water quality? 725.192(b)(2)	<u>X</u>	—		
3) Parameters used as indicators of ground-water contamination? 725.192(b)(3)	<u>X</u>	—		
(i) For each indicator parameter are at least four replicate measurements obtained at each upgradient well for each sample obtained during the first year of monitoring? 725.192(c)(2)	<u>X</u>	—		
(ii) Are provisions made to calculate the initial background arithmetic mean and variance of the respective parameter concentrations or values obtained from the upgradient well(s) during the first year? 725.192(c)(2)	<u>X</u>	—		

	<u>Yes</u>	<u>No</u>	<u>Unknown</u>	<u>Wavied</u>
11. Have records been kept of analyses for parameters in 725.192(c) and (d)? 725.194(a)(1)	<u>X</u>	_____		
12. Have records been kept of ground-water surface elevations taken at the time of sampling for each well? 725.194(a)(1)	<u>X</u>	_____		
13. Have records been kept of required elevations in 725.192(e)? 725.194(a)(1)	<u>X</u>	_____		

\*EPA will be proposing (Spring 1982) to replace this reporting requirement with an exception reporting system where reports will be submitted only where maximum contaminant levels or significant changes in the contamination indicators or other parameters are observed. EPA has delayed compliance stage for 14 a) above until August 1, 1982 (Federal Register, February 23, 1982, p. 7841-7842) to be coupled with exception reporting in the interim.

	<u>Yes</u>	<u>No</u>	<u>Unknown</u>
3. If significant differences were not due to error, was a written notice sent to the Director within 7 days of confirmation?	<u>X</u>	___	
4. Within 15 days of notification of the Director was a certified ground-water quality assessment plan submitted? 725.193(d)(2)	<u>X</u>	___	
a) Does the plan specify 725.193(d)(3):			
1) well information (specifics):			
(a) number?	<u>X</u>	___	
(b) locations?	<u>X</u>	___	
(c) depths?	<u>X</u>	___	
2) sampling methods?	<u>X</u>	___	
3) analytical methods?	<u>X</u>	___	
4) evaluation methods?	<u>X</u>	___	
5) schedule of implementation?	<u>X</u>	___	
b) Does the plan allow for determination of 725.193(d)(4):			
1) Rate and extent of migration of hazardous waste or hazardous waste constituents?	<u>X</u>	___	Rate and extent still needs to be determined
2) Concentrations of the hazardous waste or hazardous waste constituents?	<u>X</u>	___	
c) Is it indicated that the first determination was made as soon as technically feasible? 725.193(d)(5)	<u>X</u>	___	
1) Within 15 days after the first determination was a written report containing the assessment of ground-water quality submitted to the Director?	<u>X</u>	___	___
d) Was it determined that hazardous waste or hazardous waste constituents from the facility have entered the ground-water?	<u>X</u>	___	
1) If "No," was the original indicator evaluation program, required by 725.192 and 725.193(b), reinstated?	___	<u>NA</u>	___

APPENDIX B

GROUND-WATER MONITORING AND ALTERNATE SYSTEM  
TECHNICAL INFORMATION FORM

1.0 Background Data:

Company Name: Cabot Corporation ; EPA I.D.#: 042075333  
Company Address: P.O. Box 188 LPC # 04180801  
Tuscola, IL 61953

Inspector's Name: Rick Hersemann ; Date: February 11, 1985

1.1 Type of facility (check appropriately):

- 1.1.1 surface impoundment X  
1.1.2 landfill       
1.1.3 land treatment facility       
1.1.4 disposal waste pile

1.2 Has a ground-water monitoring system been established?

(Y/N) Y

1.2.1 Is a ground-water quality assessment program outlined or proposed?

(Y/N) Y

If Yes,

1.2.2 Was it reviewed prior to the site visit?

(Y/N) Y

1.3 Has a ground-water quality assessment program been implemented or proposed at the site?

(Y/N) Y

If yes, Appendix C, Ground-Water Quality Assessment Program Technical Information Form must be utilized also.

2.0 Regional/Facility Map(s)

2.1 Is a regional map of the area, with the facility delineated, included?

(Y/N) Y

If yes,

2.1.1 What is the origin and scale of the map? Aerial Photo and 15' Quad  
1"=2000', Map by Bruce Yare 1"=200', Map by Rauf Piskin  
1"=200'

2.1.2 Is the surficial geology adequately illustrated?

(Y/N) Y

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- 2.3.3 Are the locations of any monitoring wells, soil borings, or test pits shown? (Y/N) Y
- 2.3.4 Is the facility a multi-component facility? (Y/N) N
- If yes:
- 2.3.4.1 Are individual components adequately monitored? (Y/N) NA
- 2.3.4.2 Is a Waste Management Area delineated? (Y/N) NA
- 2.4 Is a site water table (potentiometric) contour map included? (Y/N) Y
- If yes,
- 2.4.1 Do the potentiometric contours appear logical based on topography and presented data? (Consult water level data) (Y/N) Y
- 2.4.2 Are groundwater flowlines indicated? (Y/N) Y
- 2.4.3 Are static water levels shown? (Y/N) Y
- 2.4.4 May hydraulic gradients be estimated? (Y/N) Y
- 2.4.5 Is at least one monitoring well located hydraulically upgradient of the waste management area(s)? (Y/N) Y
- 2.4.6 Are at least three monitoring wells located hydraulically downgradient of the waste management area(s)? (Y/N) Y
- 2.4.7 By their location, do the upgradient wells appear capable of providing representative ambient groundwater quality data? (Y/N) Y

If no, explain. Upgradient well MW 1 is being affected by an outside source of contamination from USI to the west

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### INFORMATION TABLE B-1

BORING NO.	DEPTH	DIAMETER

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INFORMATION TABLE B-2

WELL NO.		MW 1	MW 2	MW 3	MW 4	MW 5	MW 6
GROUND ELEVATION		693.4	690.7	686.9	690.9	690.0	690.0
TOTAL DEPTH		31.3	31.4	29.8	30.5	29.8	30.2
WELL CASING	TYPE MATERIAL	PVC	PVC	PVC	PVC	PVC	PVC
	DIAMETER	2"	2"	2"	2"	2"	2"
	LENGTH	34.3	34.4	32.8	33.5	32.8	33.2
	STICK-UP	30	30	30	30	30	30
	TOP ELEVATION	696.4	693.7	689.9	693.9	693.0	693.0
	BOTTOM ELEVATION	662.1	659.3	657.1	660.4	660.2	659.8
WELL SCREEN	DEPTH TOP/BOTTOM	11.4 31.3	11.4 31.4	10.0 29.8	10.6 30.5	10.5 29.8	10.9 30.2
	TYPE MATERIAL	PVC	PVC	PVC	PVC	PVC	PVC
	DIAMETER	2"	2"	2"	2"	2"	2"
	LENGTH	19.9	20.0	19.8	19.9	19.3	19.3
	SLOT SIZE	10	10	10	10	10	10
	TOP ELEVATION	682.0	679.3	676.9	680.3	679.5	679.1
	BOTTOM ELEVATION	662.1	659.3	657.1	660.4	660.2	659.8
OPEN HOLE OR SAND/GRAVEL PACK	DEPTH TOP/BOTTOM						
	DIAMETER						
	LENGTH						
	TOP ELEVATION						
	BOTTOM ELEVATION						

DATE: 3/1/05

BY: J. J.



INFORMATION TABLE B-2

WELL NO.		MW 7	MW 8	MW 9	MW 10	MW 11	MW 12	MW 13
GROUND ELEVATION		690.0	690.0	691.5	689.7	686.6	691.0	689.6
TOTAL DEPTH		30.2	30.0	51.0	16.3	15.6	16.5	50.2
WELL CASING	TYPE MATERIAL	PVC	PVC	PVC	PVC	PVC	PVC	PVC
	DIAMETER	2"	2"	2"	2"	2"	2"	2"
	LENGTH	33.2	33.0	53.8	19.3	18.3	19.4	53.5
	STICK-UP	3.0	3.0	2.8	3.0	2.7	2.9	3.3
	TOP ELEVATION	693.0	693.0	694.3	692.7	689.3	693.9	692.3
	BOTTOM ELEVATION	659.8	660.0	640.5	673.4	671.0	674.5	638.8
WELL SCREEN	DEPTH TOP/BOTTOM	10.9 30.2	10.9 30.0	45.7 51.0	6.7 16.3	6.0 15.6	6.9 16.5	45.4 50.2
	TYPE MATERIAL	PVC	PVC	PVC	PVC	PVC	PVC	PVC
	DIAMETER	2"	2"	2"	2"	2"	2"	2"
	LENGTH	19.3	19.1	5.3	9.6	9.6	9.6	4.8
	SLOT SIZE	10	10	10	10	10	10	10
	TOP ELEVATION	679.1	679.1	645.8	683.0	680.6	684.1	643.6
	BOTTOM ELEVATION	659.8	660.0	640.5	673.4	671.0	674.5	638.8
OPEN HOLE OR SAND/GRAVEL PACK	DEPTH TOP/BOTTOM							
	DIAMETER							
	LENGTH							
	TOP ELEVATION							
	BOTTOM ELEVATION							

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WELL LOG

INFORMATION TABLE B-2

WELL NO.							
GROUND ELEVATION							
TOTAL DEPTH							
WELL CASING	TYPE MATERIAL						
	DIAMETER						
	LENGTH						
	STICK-UP						
	TOP ELEVATION						
	BOTTOM ELEVATION						
WELL SCREEN	DEPTH TOP/BOTTOM	/	/	/	/	/	/
	TYPE MATERIAL						
	DIAMETER						
	LENGTH						
	SLOT SIZE						
	TOP ELEVATION						
	BOTTOM ELEVATION						
OPEN HOLE OR SAND/GRAVEL PACK	DEPTH TOP/BOTTOM	/	/	/	/	/	/
	DIAMETER						
	LENGTH						
	TOP ELEVATION						
	BOTTOM ELEVATION						

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WELLS

5.2 Is there evidence of confining (low permeability) layers beneath the site?

(Y/N) Y

If yes,

5.2.1 Is the areal extent and continuity indicated?

(Y/N) Y

5.2.2 Is there any potential for saturated conditions (perched water) to occur above the uppermost aquifer? (Y/N) N

If yes, give details: \_\_\_\_\_

\_\_\_\_\_

a) Should or is this perched zone being monitored?

(Y/N) \_\_\_\_\_

Explain \_\_\_\_\_

\_\_\_\_\_

5.2.3 What is the lithology and texture of the uppermost saturated zone (aquifer)?

Silty clay / Silt with sand lenses

\_\_\_\_\_

5.2.4 What is the saturated thickness, if indicated?

Not indicated

\_\_\_\_\_

5.3 Were static water levels measured?

(Y/N) Y

If yes,

5.3.1 How were the water levels measured (check method(s)).

- Electric water sounder \_\_\_\_\_
- Wetted tape \_\_\_\_\_
- Air line \_\_\_\_\_
- Other (explain) X Steel Tape

\_\_\_\_\_

5.3.2 Do fluctuations in static water levels occur?

(Y/N) Y

If yes,

5.3.2.1 Are they accounted for (e.g. seasonal, tidal, etc.)?

(Y/N) Y

If yes, describe: Seasonal

\_\_\_\_\_

\_\_\_\_\_

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6.0 Well Performance

6.1 Are the monitoring wells screened in the uppermost aquifer? (Y/N) Y

6.1.1 Is the full saturated thickness screened? (Y/N) N

6.1.2 For single completions, are the intake areas in the:  
(check appropriate levels)

- Upper portion of the aquifer X
- Middle of the aquifer X
- Lower portion of the aquifer

6.1.3 For well clusters, are the intake areas open to different portions of the aquifer? (Y/N) Y

6.1.4 Do the intake levels of the monitoring wells appear to be justified due to possible contaminant density and groundwater flow velocity? (Y/N) Y

7.0 Ground-Water Quality Sampling

7.1 Is a sampling (groundwater quality) program and schedule included? (Y/N) Y

7.2 Are sample collection field procedures clearly outlined? (Y/N) Y

7.2.1 How are samples obtained: (check method(s))

- Air lift pump
- Submersible pump
- Positive displacement pump
- Centrifugal pump
- Peristaltic or other suction-lift pump X
- Bailer X
- Other (describe)

Teflon tubing and Teflon Bailers will be used

7.2.2 Are all wells sampled with the same equipment and procedures? (Y/N) Y

If no, explain   

7.2.3 Are adequate provisions included to clean equipment after sampling to prevent cross-contamination between wells? (Y/N) Y

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9.5 Are the required groundwater contamination indicator parameters tested for? (Y/N) Y

9.6 Are any analytical parameters determined in the field? (Y/N) Y

Identify:

- pH X
- Temperature
- Specific conductance
- Other (describe)

9.7 Is a plan included to record information about each sample collected during the groundwater monitoring program? (Y/N) Y

9.7.1 Are field activity logs included? (Y/N) Y

9.7.2 Are laboratory results included? (Y/N) Y

9.7.3 Are field procedures recorded? (Y/N) Y

9.7.4 Are field parameter determinations included? (Y/N) Y

9.7.5 Are the names and affiliation of the field personnel included? (Y/N) Y

9.8 Are statistical analyses planned or shown for all water quality results where necessary? (Y/N) Y

9.8.1 Is an analysis program set-up which adheres to EPA guidelines? (Y/N) Y

9.8.2 Is Student's t-test utilized? (Y/N) Y  
If other evaluation procedure used, identify     

9.8.3 Are provisions made for submitting analysis reports to the Regional Administrator? (Y/N) Y

10.0 Site Verification

10.1 Plot Plan indicating the locations of various facility components, ground-water monitoring wells, and surface waters? (Y/N) Y

10.1.1 Is the plot plan used for the inspection the same as in the monitoring program plan documentation? (Y/N) Y

If not, explain     

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10.1.7.2 Were the wells sounded to determine total depth below the surface? (Y/N) Y

If not, explain \_\_\_\_\_

10.1.7.3 Were discrepancies in total depth greater than two feet apparent in any well? (Y/N) N

If yes, explain \_\_\_\_\_

10.1.8 Was ground water encountered in all monitoring wells? (Y/N) Y

If not, indicate which well(s) were dry \_\_\_\_\_

10.1.9 Were water level elevations measured during the site visit? (Y/N) Y

If yes, indicate well number and water level elevation \_\_\_\_\_

If not, explain \_\_\_\_\_

TOC - TOP OF CASING

<u>Well #</u>	<u>Stickup</u>	<u>Depth to Water (TOC)</u>	<u>Total Depth (TOC)</u>
MW 1	3.0	9.4	33.0
MW 9	2.7	44.7	54.3
MW 10	2.8	6.7	19.6
MW 11	2.7	7.6	17.3
MW 12	CAP FROZEN		

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APPENDIX C

GROUND-WATER QUALITY ASSESSMENT PROGRAM  
INFORMATION FORM

Company Name: Cabot Corporation ; EPA I.D.#: ILD# 042075333  
Company Address: P.O. Box 188 LPC# 04180801  
Tuscola, IL 61953

Inspector's Name: Rick Hersemann ; Date: February 11, 1985

1.0 Background

- 1.1 List the constituents (contaminants) originating from the waste management area: (use separate sheet if necessary) Toluene, Benzene  
Carbon Tetrachloride, Di n octyl phthalate

Tetrachloroethylene, Butyl benzyl phthalate  
Methylene chloride, chloroform

- 1.2 Have the concentrations of the hazardous waste or hazardous waste constituents shown significant increases in:

- upgradient monitoring wells (Y/N) y - Tox
- downgradient monitoring wells (Y/N) y

- 1.2.1 List or indicate on a map, the wells which have shown significant increases: (use separate sheet if necessary) MW 1 - Tox increase

MW 6, MW 7, MW 8 - TOC, Tox, Spec. Cond. increase

MW 6, MW 7, MW 8 - pH decrease

- 1.3 Were the significant increases in contaminant concentration determined through the use of the student's t-Test? (Y/N) y

If no,

- 1.3.1 Explain procedure used \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

- 1.4 Has the possibility of error (e.g., laboratory) been eliminated? (Y/N) y

- 1.4.1 Explain Lab results show obvious groundwater contamination near surface impoundment

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INFORMATION TABLE C-1

<b>WELL NO.</b>  <b>GROUND ELEVATION</b>  <b>TOTAL DEPTH</b>							
<b>WELL CASING</b>	<b>TYPE MATERIAL</b>						
	<b>DIAMETER</b>						
	<b>LENGTH</b>						
	<b>STICK-UP</b>						
	<b>TOP ELEVATION</b>						
	<b>BOTTOM ELEVATION</b>						
<b>WELL SCREEN</b>	<b>DEPTH TOP/BOTTOM</b>	/	/	/	/	/	/
	<b>TYPE MATERIAL</b>						
	<b>DIAMETER</b>						
	<b>LENGTH</b>						
	<b>SLOT SIZE</b>						
	<b>TOP ELEVATION</b>						
	<b>BOTTOM ELEVATION</b>						
<b>OPEN HOLE OR SAND/GRAVEL PACK</b>	<b>DEPTH TOP/BOTTOM</b>	/	/	/	/	/	/
	<b>DIAMETER</b>						
	<b>LENGTH</b>						
	<b>TOP ELEVATION</b>						
	<b>BOTTOM ELEVATION</b>						

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